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(56) Documents cited

EP 0445635 A1 EP 0402924 A1

(58) Field of search

UK CL (Edition K) E2F FAF
INT CL⁵ E05D

(54) Hinging device for casing

(57) A hinging device for a casing of a portable computer has an axle (30) fitted into an inner tube (10) which is further fitted into an outer tube (20). A first engaging end (31) of the axle (30) protrudes from the inner tube (10) and is connected to a cover portion (34) of a casing, while the outer tube (20) has a second engaging end (21) connected to a body portion (22) of the casing, such that when the axle (30) is operably pivoted in the outer tube (20), friction therebetween is able to anchor the cover portion (34) in a desired position relative to the body portion (22).

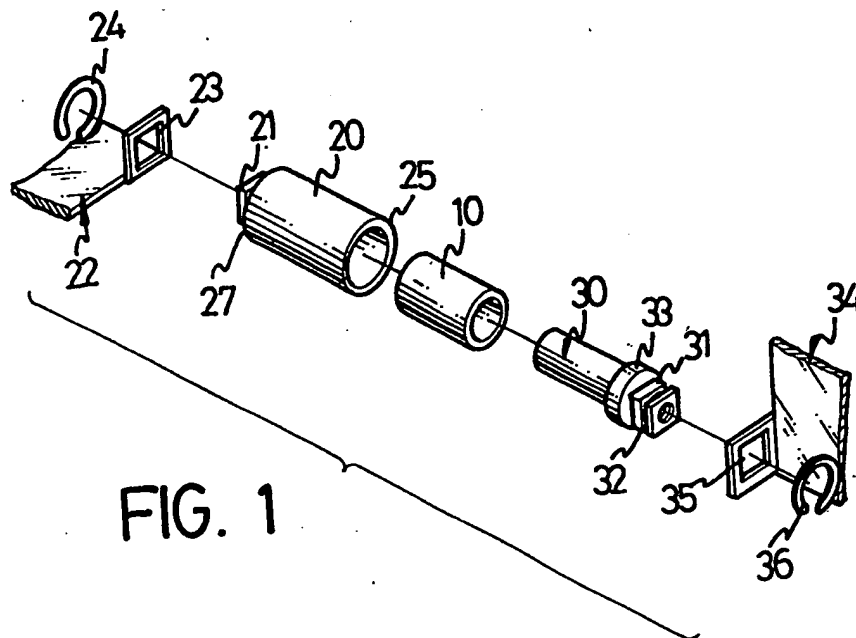


FIG. 1

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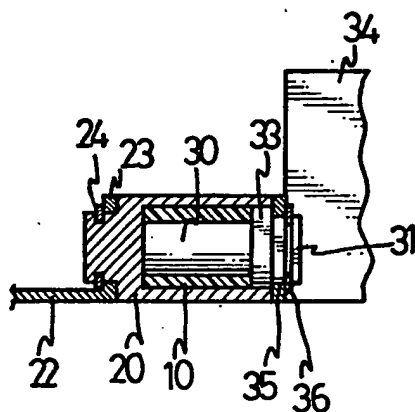


FIG. 3

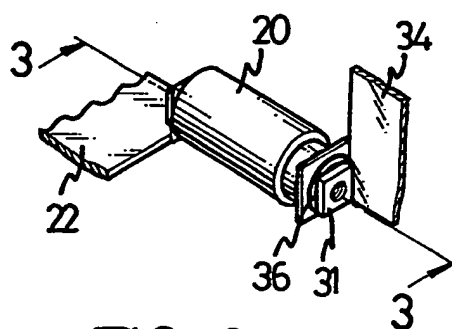


FIG. 2

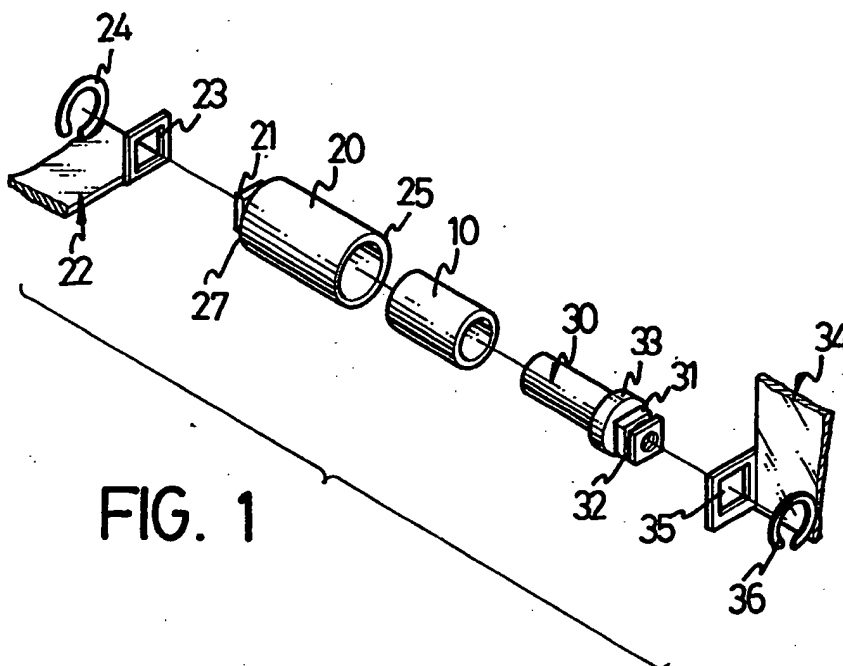
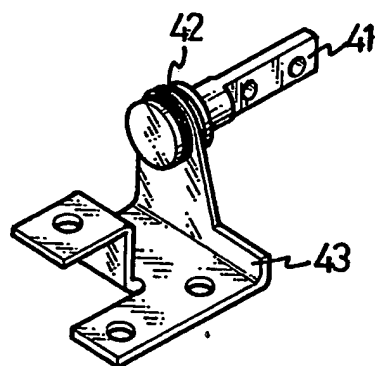
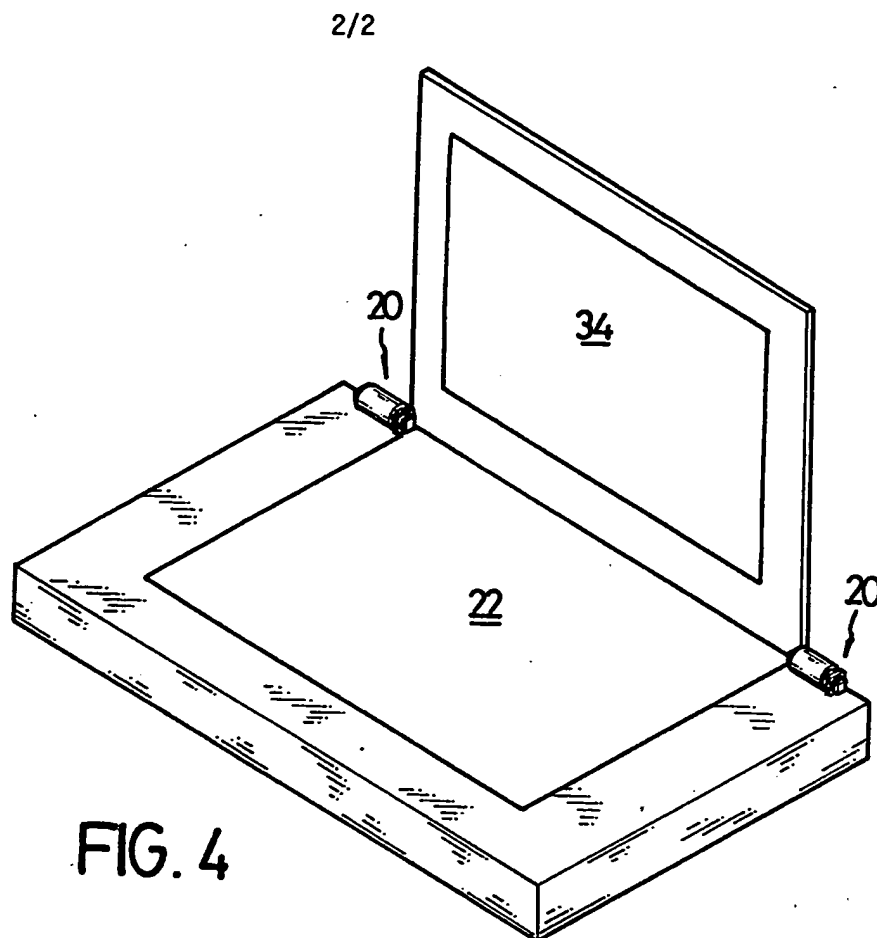


FIG. 1



1 TITLE: HINGING DEVICE FOR CASING

2 This invention relates to a hinging device for a
3 casing, especially a casing of the type employed in a
4 portable computer or the like.

5 A conventional hinging device as shown in Fig. 5
6 of the drawings is comprised of an axle 41 pivotally
7 received by a holding frame 43, and an elastomeric
8 gasket 42 disposed therebetween for providing a
9 compressive friction in the engagement of the axle 41
10 and the holding frame 43. However, after long term
11 use, the elastomeric gasket 42 will lose its elasticity
12 and cause a malfunction of the hinging device.

13 Accordingly, the present invention is that of a
14 hinging device for a casing comprising an axle fit into
15 an inner tube which is further fit into an outer tube.
16 The axle includes a rod portion, a flange portion, and
17 a first engaging portion. The outer tube includes an
18 open end and a second engaging portion. The inner tube
19 and the axle are received in the outer tube via the
20 open end thereof, with the first engaging portion
21 protruding from the outer tube and the rod portion
22 frictionally and pivotally received in the inner tube,
23 and with the flange portion against an outer end of the
24 inner tube. The first engaging end of the axle which
25 protrudes from the outer tube is connected to a cover
26 portion of the casing, while the outer tube has a
27 second engaging end connected to a body portion of the
28 casing, such that when the axle is operably pivoted in
29

1 the outer tube, friction therebetween is able to anchor
2 the cover portion in a desired position relative to the
3 body portion.

4 It is an object of the present invention to
5 provide a hinging device for a casing which provides
6 long life effect.

7 Fig. 1 is an exploded view of a hinging device in
8 accordance with the present invention;

9 Fig. 2 is a perspective view of the hinging device
10 of the present invention connected to a portion of a
11 casing;

12 Fig. 3 is a fragmentary cross-sectional view taken
13 along line 3-3 of Fig. 2;

14 Fig. 4 is a schematic view showing the hinging
15 device arranged in a casing; and

16 Fig. 5 shows a conventional hinging device.

17 Referring to Figs. 1 to 4, a hinging device for
18 anchoring a pivotal cover 34 in a position relative to
19 a body portion 22 has a pair of hinging means each of
20 which comprises an axle 30, an inner tube 10, and an
21 outer tube 20. The axle 30 comprises a rod portion 37,
22 a flange portion 33, and a first engaging portion 31
23 securely attached to the pivotal cover 34. The outer
24 tube 20 comprises an open end 25 and a second engaging
25 portion 21 securely attached to the body portion 22.
26 The inner tube 10 and the axle 30 together are received
27 in the outer tube 20 via the open end 25 with the rod
28 portion 37 frictionally yet pivotally received in the
29

1 inner tube 10 and with the flange portion 33 against an
2 outer end of the inner tube 10. Friction between an
3 inner periphery of the inner tube 10 and an outer pe
4 riphery of the rod portion 37 and between an inner
5 periphery of the outer tube 20 and the flange portion
6 33 enables the pivotal cover 34 to be anchored in a
7 desired position relative to the body portion 22.

8 As shown in Fig. 4, a pair of hinging means is
9 disposed on two sides of the casing. Nevertheless, the
10 number of the hinging means can be varied. The hinging
11 means can be used in different types of casings, and
12 the number thereof depends on the type of casing.

13 The inner tube 10 is made of polymide material to
14 provide long life effect, because the inner periphery
15 and the outer periphery thereof experiences relatively
16 high friction when manually anchored the axle 30 with
17 respect to the outer tube 20.

18 The first engaging portion 31 of the axle 30 is
19 fit to a lug 35 of the cover portion 34 and the second
20 engaging portion 21 of the outer tube 20 is fit to a
21 second lug portion 23 of the body portion 22. The first
22 engaging portion 31 of the axle 30 is formed with a
23 first groove 32 for receiving a first C-ring 36 to
24 further secure the axle 30 to the cover portion 34.
25 Also, the second engaging portion 21 of the outer tube
26 20 is formed with a second groove 27 for receiving a
27 second C-ring 24 to further secure the outer tube 20 to
28 the body portion 22. However, the engaging portions 31
29

and 21 are not limited to those shown in Fig. 1. The
engaging portions 31 and 21 are easily changed to
compliment different casings.

I claim:

1. A hinging device for anchoring a pivotal cover in a position relative to a body portion including at least a hinging means comprising:

an axle, an inner tube, and an outer tube; said axle comprising a rod portion, a flange portion, and a first engaging portion securely attached to said pivotal cover; said outer tube comprising an open end and a second engaging portion securely attached to said body portion; said inner tube and said axle being received in said outer tube via said open end with said rod portion frictionally and pivotally received in said inner tube and with said flange portion against an outer end of said inner tube;

whereby friction between an inner periphery of said inner tube and an outer periphery of said rod portion and between an inner periphery of said outer tube and said flange portion enables said pivotal cover to be anchored in a desired position relative to said body portion.

2. A hinging device for casing as claimed in claim 1, wherein said inner tube is made of polyimide material.

3. A hinging device for casing substantially as hereinbefore described with reference to and as shown in the accompanying drawing.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

-5-

Application number

GB 9210165.8

Relevant Technical fields

(i) UK CI (Edition K) E2F (FAF)

(ii) Int CI (Edition 5) E05D

Search Examiner

A H MITCHELL

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

16 OCTOBER 1992

Documents considered relevant following a search in respect of claims

1 TO 3

| Category (see over) | Identity of document and relevant passages | Relevant to claim(s) |
|------------------------|--|-------------------------|
| A | EP 0445635 A1 (MATSUSHITA) | 1 |
| A | EP 0402924 A1 (NHK SPRING) | 1 |

| Category | Identity of document and relevant passages | Relevant to claim(s) |
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